Carbon Capture and Storage Law: Public Policy and the Legal Issues

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Outline of PowerPoint Presentation

A. What is CCUS?

B. Consensus on need for CCUS

C. Outline of legal framework/issues

D. Recent Developments

A. WHAT IS CCUS?

CCS and CCUS

- CCS = **c**arbon **c**apture and **s**equestration
- CCS = **c**arbon **c**apture and **s**torage
- CCUS = **c**arbon **c**apture, **u**tilization, and **s**torage
- These terms are used more or less synonymously

CCUS

These activities involve "capture" of CO_2 (carbon dioxide) from either

- air (so-called "direct air capture"), or
- a gaseous emissions stream from some human activity
    - e.g., power plant emissions, cement factory, fertilizer manufacturing plant, facility making hydrogen from natural gas, etc.)

What is done with “captured” carbon dioxide?

- Most of the carbon dioxide captured in CCUS will be injected into the subsurface of the earth in deep formations for permanent disposal.
- Some of the captured CO_2 may be “utilized” in processes that use the captured CO_2 for some purpose.

Enhanced Oil Recovery

- One method for producing oil from certain formations in certain circumstances is to inject CO_2 into the oil-bearing formation. The CO_2 helps move the oil to an oil production well.

- Much of the CO_2 injected during such enhance oil recovery (EOR) remains in the ground.

- To the extent that the oil produced by EOR is used in lieu of oil that would have been produced by some other method, EOR can help fight climate change.

Who do CCUS?

The policy reason is to

- either remove CO_2 from the air in direct capture or to capture and remove CO_2 from industrial emissions before the emissions are released to the atmosphere

- to combat climate change

B. CONSENSUS ON NEED FOR CCUS

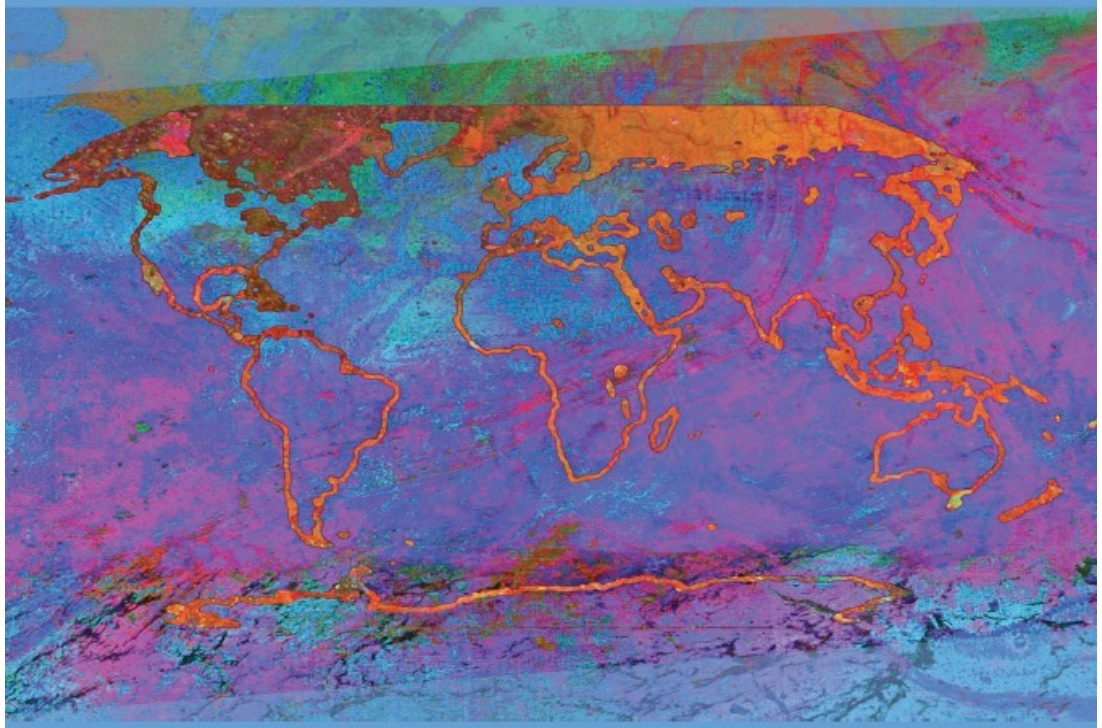
ipcc

INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2021

The Physical Science Basis

Summary for Policymakers



WGI

Working Group I Contribution to the
Sixth Assessment Report of the
Intergovernmental Panel on Climate Change

WMO UNEP

IPCC

The Intergovernmental Panel on Climate Change has stated:

"Anthropogenic CO_2 removal (CDR) has the potential to remove CO_2 from the atmosphere and durably store it in reservoirs. (*high confidence*)."

IPCC, *Climate Change 2021: The Physical Science Basis—Summary for Policymakers* at p. 29

IPCC

The Intergovernmental Panel on Climate Change has stated:

"Achieving global net zero CO_2 emissions, with anthropogenic CO_2 emissions balanced by anthropogenic removals of CO_2, is a requirement for stabilizing CO2-induced global surface temperature increase."

IPCC, *Climate Change 2021: The Physical Science Basis—Summary for Policymakers* at p. 29

Net Zero by 2050

A Roadmap for the Global Energy Sector

International Energy Agency

iea

IEA

The International Energy Agency states, in describing a pathway to “net zero”:

“Every month from 2030 onwards, ten heavy industrial plants are equipped with CCUS, three new hydrogen-based industrial plants are built, and 2 GW of electrolyser capacity are added at industrial sites.”

IEA, *Net Zero by 2050 – A Roadmap for the Global Energy Sector* at p. 19

IEA

In describing a pathway to “net zero,” the International Energy Agency refers to:

“the required roll-out of hydrogen and CCUS”

IEA, *Net Zero by 2050 – A Roadmap for the Global Energy Sector* at p. 21

IEA

In describing a pathway to “net zero,” the International Energy Agency refers to:

“technologies such as hydrogen, CCUS and offshore wind … are needed to tackle emissions in sectors where reductions are likely to be most challenging”

IEA, *Net Zero by 2050 – A Roadmap for the Global Energy Sector* at p. 23

IEA

The International Energy Agency says:

"A failure to develop CCUS for fossil fuels could delay or prevent the development of CCUS for process emissions from cement production and carbon removal technologies, making it much harder to achieve net-zero emissions by 2050."

IEA, *Net Zero by 2050 – A Roadmap for the Global Energy Sector* at p. 47

IEA

The International Energy Agency says:

"The key pillars of decarbonisation of the global energy system are energy efficiency, behavioural changes, electrification, renewables, hydrogen and hydrogen-based fuels, bioenergy and CCUS."

IEA, *Net Zero by 2050 – A Roadmap for the Global Energy Sector* at p. 64

IEA

The International Energy Agency says:

"CCUS is particularly important for cement manufacturing."

IEA, *Net Zero by 2050 – A Roadmap for the Global Energy Sector* at p. 79

World Energy Outlook 2021

International Energy Agency

iea

IEA

"CCUS is critical to addressing process emissions from cement, natural gas-based hydrogen and biofuel production, for the production of synthetic fuels, and to reach negative emissions from bioenergy with carbon capture and storage and direct air capture with storage."

IEA, *World Energy Outlook 2021* at p. 121

IEA

"In the electricity sector, most of the heavy lifting is done by renewables in the NZE, but bioenergy, CCUS and hydrogen-based fuels play a critical role in providing low-emissions dispatchable capacity and delivering negative emissions when CCUS is combined with bioenergy."

IEA, *World Energy Outlook 2021* at p. 121

United States of America

U.S.

U.S. public policy favors the development of CCUS. For example, the U.S. seeks to promote investment in CCUS through the so-called 45Q tax credits.

U.S. Department of Energy

U.S. Department of Energy

The U.S. Department of Energy has given numerous grants to promote CCUS research.

U.S. Department of Energy

- "Carbon capture is essential to lowering global carbon emissions."

Rick Perry, U.S. Sec'y Energy in Trump Administration

https://www.energy.gov/articles/doe-announces-20-million-regional-initiative-accelerate-carbon-capture-utilization-and

U.S. Department of Energy

- "Carbon capture, utilization, and storage technologies are key to addressing global emissions issues. …"

Mark W. Menezes, Under Secretary of Energy in Trump Administration

https://www.energy.gov/articles/us-department-energy-announces-131-million-ccus-technologies

U.S. Department of Energy

- “Every pocket of the country can and will benefit from the clean energy transition, and that includes our expanded use of carbon capture and storage technology to remove carbon pollution from fossil fuel use.”

Jennifer M. Granholm, U.S. Sec’y Energy in Biden Administration

https://www.energy.gov/articles/doe-awards-20-million-help-states-deploy-carbon-capture-and-storage

U.S. Department of Energy

- “Finding ways to sustainably use all our energy resources is critical to meeting the environmental and energy security needs of both the U.S. and China, and it requires collaboration on technologies like CCUS. ”

Dept. of Energy article during Obama Administration

https://www.energy.gov/fecm/articles/forum-highlights-us-china-commitment-ccus

Louisiana

Louisiana

"It is declared to be in the public interest for a public purpose and the policy of Louisiana that:

(1) The geologic storage of carbon dioxide will benefit the citizens of the state and the state's environment by reducing greenhouse gas emissions.

***"

La. Rev. Stat. 30:1102

C. OUTLINE OF LEGAL FRAMEWORK/ISSUES

Legal Issues

- 45Q tax credits incentivize CCUS
- Safe Drinking Water Act governs subsurface injection
- Pore space ownership
- How to acquire pore space rights
- How will pore space rights and CCUS interact with/affect oil and gas rights
- How will deals with landowners be structured

45Q Tax Credits

- Federal tax code provides for tax credits for carbon injections
- One rate is provided for injections associated with enhanced oil recovery (EOR) projects
- A higher rate is provided for pure storage projects
- Refer to materials from last year's Mineral Law Institute for more information on the tax credits

Safe Drinking Water Act

- SDWA is a 1974 federal statute
- Part C protects “underground sources of drinking water”
- It requires regulations for underground injection control (UIC)

SDWA Regulations

- CFR provides rules for six classes of injection wells
- Class II regulates various types of wells, including for wells for enhanced oil recovery (EOR)
  - Relevant because EOR often involves injection of CO_2
- Class V is catch-all category
  - Relevant because of possibility of monitoring wells or experimental wells
- **Class VI** is for CO_2 injection for permanent storage

Administration of SDWA

- SDWA provides process for States to seek “primacy” to administer SDWA within their boundaries
- States can obtain primacy for some classes of injection wells and not others
- If a State has primacy for a particular class of wells, then someone seeking a SDWA UIC permit for that type of well seeks a permit from the State
- Otherwise, applicant seeks permit from EPA Regional Office

Louisiana and primacy

- Louisiana has SDWA primacy for Classes I-V
- Louisiana has applied for primacy for Class VI
- Good chance Louisiana will obtain primacy for Class VI sometime in 2022

Pore space ownership

- Pore spaces typically belong to the landowner/surface owner, even if someone else has mineral rights
- Refer to materials from last year's JELR symposium

How to acquire pore space rights

- Private agreement is one option
- Also, a handful of states have provided for the use of eminent domain to acquire pore space (and surface rights) needed or a process that appears designed to be analogous to oil and gas unitization
- Refer to materials from year's JELR symposium

How will pore space rights and CCUS interact with/affect oil and gas rights?

- Numerous issues
- Refer to materials from year's JELR symposium

How will agreements with landowners be structured?

- Possibilities include
  - Leases
  - Servitudes
  - Outright purchase of the land
  - Outright purchase of pore space rights (if a state allows such division of ownership)
  - Voluntary process akin to unitization
- Refer to materials from year's JELR symposium
- Also see State's "operating agreements"

D. RECENT DEVELOPMENTS

Louisiana

- State of Louisiana grants two “operating agreements”
- Primacy application

State grants two operating agreements for CCUS

- La. R.S. 30:209 authorizes State Mineral and Energy Board to enter "operating agreements" for
  - oil and gas operations or
  - storage of hydrocarbons or CO_2
- Such "operating agreements" resemble a lease
- Board entered two CCUS operating agreements in October 2021—one to Capio Sequestration, LLC and one to Air Products Blue Energy Blue Energy, LLC

Operating agreement with Air Products

- With Air Produces Blue Energy LLC
- Covers 122,455 acres in Livingston, St. James, St. John the Baptist, Cameron, and Tangipahoa

Operating agreement with Capio

- With Capio Sequestration, LLC
- Covers 44,511 acres in Ascension, Iberville, Pointe Coupee, St. John the Baptist, St. Martin, and St. Landry

Provisions of operating agreements–term (1)

- "Initial Term" of three years, with possibility of extension of two years ("Initial Discretionary Term") for good cause
- Operating agreement terminates at end of Initial Term or Initial Discretionary Term unless company has applied for permit to construct Class VI injection well

Provisions of operating agreements–term (2)

- If agreement continues after “Initial Term” (and any extension) by application of a permit for a Class VI well, or if there is an application, …
- Agreement moves into “Permit/Construction Term” of four years (with possibility of extension) if company has not begun injections.

Provisions of operating agreements–term (3)

- If company begins injections while agreement is in effect, the agreement moves into the "Operating Term"

- The "Operating Term" can last as long as there is not a gap of 1 year in injections (though State, in its "sole discretion," may extend the Operating Term in the event of such a gap in injections)

Provisions of operating agreements—compensation

- The operating agreements provide for three types of compensation to the State.
- The three payments are analogous to the payments made under an oil & gas lease for

1. bonus
2. rentals
3. royalties

The “bonus”

- In Capio operating agreement, the dollar amount of the “bonus” is $1,268,000 for one area (~$38.76 per acre) and $250,000 for another area (~$21.19 per acre).

- In the Air Products operating agreement, the bonus is $50 per acre

The “rentals”

- In both operating agreements, the annual rental fee is $50 per acre

The “injection fee”

- In both operating agreements granted in October 2021, the “Annual Injection Fee Per Ton” starts at $1.60 per ton, but the agreement provides for the possibility of an increase in the rate if the 45Q tax credit is increased.

- The operating agreements also provide for a Minimum Annual Guaranteed Payment for injections

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